

**MULTI-PASS EXHAUST GAS  
RECIRCULATION COOLER**

**ABSTRACT OF THE DISCLOSURE**

5           An apparatus and method for cooling hot fluids, especially exhaust gases,  
with a multi-pass cooler core. The cooler core is particularly useful for cooling  
exhaust gases flowing in an exhaust gas recirculation (EGR) system or regime in  
operative association with an internal combustion engine, such as a diesel engine.  
Cooled gases are recirculated to the engine input to help reduce noxious exhaust  
10   emissions. The invention utilizes unequal areas-in-flow between the first exhaust  
pass through the core and the second and subsequent passes through the core. The  
first pass through the core features an area-in-flow comparatively larger than the  
area-in-flow of the second pass. The difference in areas-in-flow between passes  
influences gas velocities to reduce fouling, despite changes in exhaust gas  
15   temperature between passes through the core.